

PLANS AND DOCUMENTS
referred to in the PDA
DEVELOPMENT APPROVAL

Approval no: DEV2019/1010

Date: 3rd June 2019

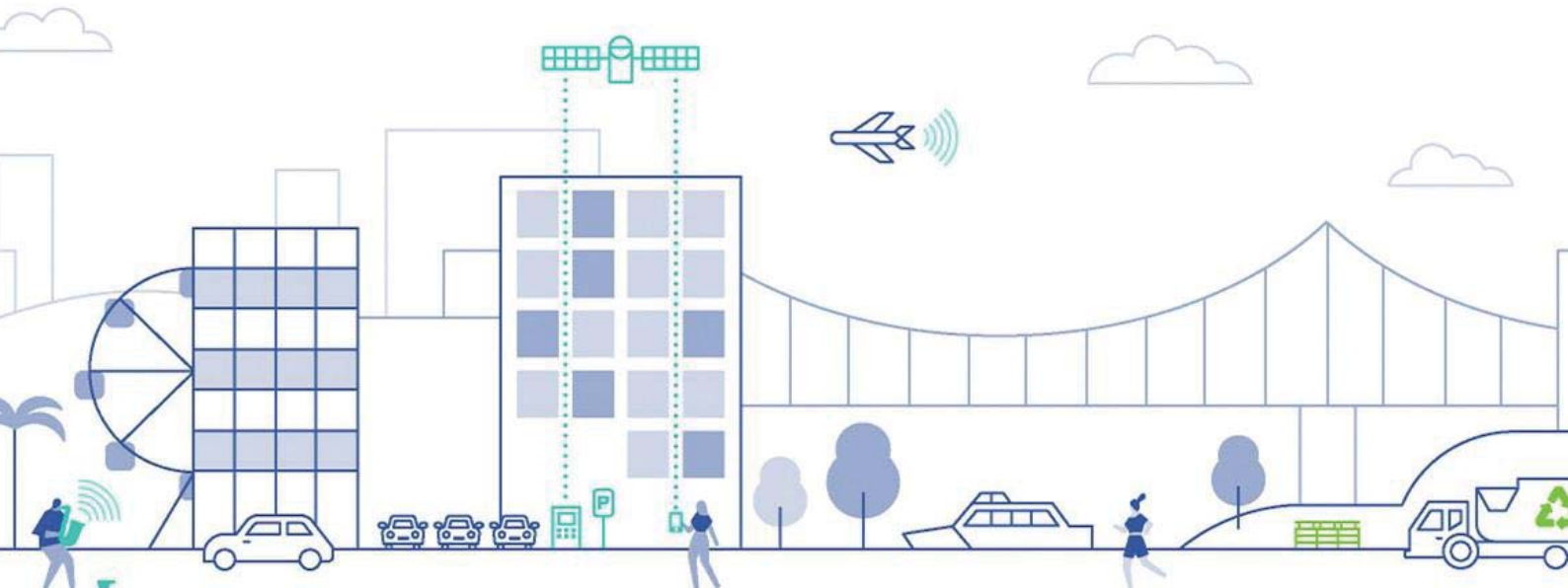


Operational Waste Management Plan

Proposed Mixed-Use Development

At Lot 130 Mundoo Boulevard, Maroochydore

On Behalf of Habitat Development Group Pty Ltd



About TTM

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Executive Summary

The proposed mixed-use development at Lot 130 Mundoo Boulevard, Maroochydore, will consist of residential and commercial components including residential apartments in two separate towers (built in 2 stages) and retail tenancies on the ground floor. Residential townhouses will also be included in stage 2b.

This operational waste management plan (OWMP) outlines the estimated waste streams, volumes, waste management processes and recommended equipment for the proposed development based on the Sunshine Coast Council – **Prescribed Waste Infrastructure Standards (No2) 2018 or PWIS**.

The OWMP is required to comply with the PWIS and therefore provides information relating to integration with the Councils Automated waste Collection System (AWCS) in addition to the standard summary of the development uses and estimated waste generation.

The OWMP refuse room drawings demonstrate integration with the AWCS. The OWMP also acknowledges the need for Private Non-Pneumatic Waste Infrastructure (PNPWI) required and addresses refuse vehicle access and loading for Non AWCS waste fraction as described in Schedule 2 – Table 2 of the PWIS (reference Pages 19-20).

Refuse Separation, Disposal and Collection

The development buildings will include dual refuse chutes for access and disposal of waste and recycling into the assigned chutes from all levels. The chutes will discharge into 1100L bins at the ground level.

Private Pneumatic Waste Infrastructure (PPWI)

Waste PPWI will consist of 1 x “Outdoor Style” AWCS Inlet located within the Building 1 ground floor refuse room. The inlet connects to an underground bulk storage “screw tank with auger” with capacity of 2070 litres. The screw tank will be housed within an accessible pit section for ongoing maintenance – All residential waste material will be transferred to the Building 1 Refuse Room and loaded into the AWCS inlet / storage screw tank to await collection by the AWCS.

Recycling PPWI will consist of 1 x “Outdoor Style” AWCS Inlet located within the Building 1 ground floor refuse room. The inlet connects to an underground bulk storage “screw tank with auger” with capacity of 1440 litres. The screw tank will be housed within an accessible pit section for ongoing maintenance – All residential recycling material will be transferred to the Building 1 Refuse Room and loaded into the AWCS inlet / storage screw tank to await collection by the AWCS.

AWCS collections will occur up to 4 times per day providing the following daily capacity for each refuse stream:

- Waste 8,280 Litres per day
- Recycling 5,760 Litres per day

All units and food and beverage tenancies will include under sink macerators for disposal of food waste.

Private Non-Pneumatic Waste Infrastructure (PNPWI)

As detailed within the body of the OWMP and specifically Appendix C – waste bins will be provided within the Building 1 Waste Room for disposal of the Non AWCS waste fractions to await collection by a an enclosed Refuse Collection Vehicle (RCV) with tail lifter.

An RCV 8.8m in length and maximum 3 metres in body height has been used as the design vehicle for site access, egress and manoeuvring. Swept paths for manoeuvring of the RCV are demonstrated within the OWMP and Appendix E.

It should be noted that the design vehicle is used for the purpose of demonstrating the **maximum** sized vehicle that may be used to enter and exit the site. Waste collection contractors will complete a full risk assessment prior commencing collection and nominate a compliant vehicle 8.8m or less to complete the service.

Waste Management Plan Compliance Checklist according to Schedule 7.1 PWIS

Description	Compliance Reference	Compliance
(a) A waste management plan in a form specified by the Waste Infrastructure Authority is to be included in the detailed design and specification documentation for the Prescribed Waste Infrastructure.	Waste Management Plan reference:18BRW0034_Lot 130 Mundoo Blvd_WMP_190509_Amended Final	
(b) A waste management plan for Prescribed Waste Infrastructure is to contain information which is to include the following:		
(i) the proposed or actual uses of the Serviced Premises including: A. a description of any environmentally relevant activity (as defined by Schedule 1 of the Environmental Protection Regulation 2008); B. the estimated floor area occupied by each defined use specified in Table SC7.1 of the Infrastructure Agreement; C. for a non-residential use, the details of the estimated floor area occupied by each tenancy for each development type and defined use specified in Table SC7.1 of the Infrastructure Agreement;	A. To Be Discussed B. Refer to Appendix A C. Refer to Appendix A	
(ii) the types of waste likely to be generated in the Serviced Premises;	Section 1 1.5 Development Refuse Profile Table 1.1 & Table 1.2	
(iii) the estimated quantity of waste likely to be generated in the Serviced Premises for each AWCS Waste Fraction and Non AWCS Waste Fraction;	And; Appendix A – Detailed Refuse Calculations	
(iv) the methods for the collection and disposal of waste to be generated in the Serviced Premises including the proposed collection service hours (i.e. between the hours of 7:00am and 7:00pm);	Section 2 - Refuse Storage, Systems and Collections Section - 5 Recommended Design Requirements	
(v) initiatives that will be implemented to: A. minimise waste by reducing, reusing or recycling waste; and B. segregate and separate waste into each of the AWCS Waste Fractions;	Section 2 - Refuse Storage, Systems and Collections Section 5 - Recommended Design Requirements	
(vi) a strategy for the compliant use of the Private Pneumatic Waste Infrastructure incorporating the following: A. communication strategy; B. signage; C. placement of AWCS Collection Points;	Section 2 - Refuse Storage, Systems and Collections	
(vii) details on how the Non AWCS Waste, other than Organic Waste, will be	Section 2 - Refuse Storage, Systems and Collections Section 5 - Recommended Design Requirements	

	processed, handled, stored and presented for collection including the proposed location of any associated processing equipment and a description of the type of Non AWCS Waste Receptacles proposed to store the Non AWCS Waste;		
(viii)	the methods and processes for transferring Non AWCS Waste, other than Organic Waste, from in the Serviced Premises to the Waste Storage Area;	Section 3 Residential Refuse Section 4 Commercial Refuse	
(ix)	details of the spaces and infrastructure allocated for processing, handling, storage and collection activities and demonstration that they are adequate to meet the Amenity and Character Criteria;	Section 2 - Refuse Storage, Systems and Collections Section 5 - Recommended Design Requirements	
(x)	details of the proposed Non AWCS Waste Service Point, including the range of collection vehicles that are to be accommodated;	Section 2 - Refuse Storage, Systems and Collections 2.3 Refuse Vehicle Access and Loading 2.4 Non-AWCS & Commercial Servicing	
(xi)	details of the proposed access arrangement to the Non AWCS Waste Service Point for collection vehicles to remove the Non AWCS Waste;	Section 2 - Refuse Storage, Systems and Collections 2.3 Refuse Vehicle Access and Loading 2.4 Non-AWCS & Commercial Servicing	
(xii)	details which demonstrate that the proposed service method, processes, and frequency of collection meet the Amenity and Character Criteria;	Section 2 - Refuse Storage, Systems and Collections 2.3 Refuse Vehicle Access and Loading 2.4 Non-AWCS & Commercial Servicing	
(xiii)	a description of the design details of the Waste Storage Area, including the method of preventing stormwater contamination;	Section 5 - Recommended Design Requirements	
(xiv)	the location and details of the Waste Storage Area.	Section 2 - Refuse Storage, Systems and Collections	

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GLOSSARY OF TERMS

In this waste management plan, a term or abbreviation has the following meaning, unless the subject matter otherwise indicated:

TERM	DEFINITION
Automated Vacuum Waste Collection System (AWCS)	An AWCS system, also known as pneumatic refuse collection, or automated vacuum collection, transports waste and recycling material at high speed through underground pneumatic tubes to a collection station where it is compacted and sealed in containers.
Baler	A baler is a device that compresses waste into a mould to form bales which may be self-supporting or retained in shape by wire ties and strapping. It is commonly used to bale cardboard and soft plastics (plastic film).
Bin Storage Area	A bin storage area in an enclosed area designated for storing on-site refuse bins or a refuse compactor within the property.
Bulk Mobile Garbage Bin (MGB)	A bulk MGB is a plastic (polypropylene) receptacle that is greater than 360 litres in capacity generally ranging from 0.66 m ³ to 1.10 m ³ used for the storage of refuse.
Chute Discharge	A chute discharge is the point at which refuse exits from the refuse chute.
Chute Discharge Room	The chute discharge room (separate to a bin storage area) is an enclosed area or room housing the discharge and associated equipment for the refuse chute.
Collection Point	The collection point is an identified position where refuse bins are stored for collection and emptying. for bulk bins, the collection point can also be the bin storage area.
Compactor	A machine for compressing waste into disposable or reusable receptacles.
Composter	A composter is a container or machine used for composting specific food scraps and/or organic materials.
Cubic Metre (m ³)	Cubic capacity in Cubic Metre(s) related to refuse areas or equipment.
Food Waste Recycling System	A food waste recycling system is defined as a vacuum or pump-based system for shredding, macerating or pulping of food waste. The food waste is transferred through pressure (service) pipes to sealed liquid storage tanks.
Green Waste	All vegetated organic material such as small branches, leaves and grass clippings, tree and shrub pruning, plants and flowers.
Hopper	A hopper is a fitting into which waste is placed and from which it passes into a chute or directly into a waste container. It consists of a fixed frame and hood unit (the frame) and a hinged or pivoted combined door and receiving unit, and it is typically mounted on a wall.
Litre (L)	Litre(s) related to refuse volumes.
Mobile Garbage Bin (MGB)	A MGB is a plastic (polypropylene) bin or bins used for the temporary storage of refuse that is up to 360 litres in capacity and may be used in kerbside refuse collection or on-site collection.
Putrescible Waste	Putrescible waste is the component of the waste stream liable to become putrid and usually breaks down in a landfill to create landfill gases and leachate. Typically applies to food, animal and organic products.
Recycling	Recycling contains all material suitable for re-manufacture or re-use, e.g. glass bottles and jars; plastics such as PET, HDPE and PVC; aluminium aerosol and steel cans and lids; milk and juice cartons; soft drink, milk and shampoo containers; paper, cardboard, junk mail, newspapers and magazines.
Refuse	Refuse is material generated and discarded from residential and commercial buildings including general waste, recyclables, green waste and bulky items.

TERM	DEFINITION
Refuse Bin	A refuse bin is a receptacle used for the storage of refuse, e.g. wheelie bins, bulk MGB's or bulk bins.
Refuse Chute	A refuse chute is a ventilated, essentially vertical pipe passing from floor to floor of a building for the purpose of refuse disposal, with openings as required to connect with hoppers and normally terminating at its lower end at the roof of a central refuse room.
Refuse Collection Vehicle (RCV)	An RCV is a vehicle that is specifically designed for collecting and emptying refuse bins and refuse compactors.
Refuse Compactor	A refuse compactor is a receptacle that provides for the mechanical compaction and temporary storage of refuse. It allows to reduce bin numbers and collection frequency.
Refuse Storage Room	A refuse storage room is an area identified for storing on-site MGB's or bulk bins within the property.
Regulated Waste	Regulated waste is waste prescribed under legislation as regulated waste.
Square Metre (m ²)	Square Metre(s) related to refuse areas.
Stationary Compactor	A stationary compactor is a large permanently installed equipment used for compaction of material into sealed containers for transportation.
Tonne (T)	Tonne(s) related to refuse weight.
Manual Transfer	Manual transfer means physical transfer of refuse material and associated bulk bins or trolleys without assistance.
Waste	Waste is referred to as refuse material with the exclusion of recycling, green waste, hazardous waste, special waste, liquid waste and restricted solid waste.
Waste (General Waste)	General waste is generally referred to as material free of any actual or apparent contamination such as pathological/infectious, radioactive materials and/or hazardous chemical. Reporting use is for material considered to be free of food waste.
Collection Vehicles	
Rear-Loading RCV	A rear-loading RCV is a truck specially designed to collect municipal solid waste and recycling, typically 240L wheelie bins to 1100L bulk bins, from rear loading mechanism and haul the collected waste to a solid waste treatment facility.
Front-Loading RCV	A front-loading RCV is a truck specially designed to collect municipal solid waste and recycling, typically 1500L to 4000L bulk bins, from a front-loading mechanism and haul the collected waste to a solid waste treatment facility.

1. Introduction

1.1. Background

TTM have been engaged by Habitat Development Group Pty Ltd to prepare an OWMP to assess the refuse produced for the proposed mixed-use development located at Lot 130 Mundoo Boulevard, Maroochydore. It is understood that a development application has been lodged with SCC.

The OWMP outlines the waste management processes, equipment and construction requirements for the development and includes information to address design and integration with the AWCS.

The Prescribed Waste Infrastructure Standards (No3) 2019 (PWIS) has been referenced to provide compliant design information for the Private Pneumatic Waste Infrastructure (PPWI) and provide Private Non-Pneumatic Waste Infrastructure (PPWI) to accommodate collections for Non AWCS Waste Fraction and contingency collections for AWCS Waste Fraction.

1.2. Scope

The assessment and associated recommendations include:

- Identification and appropriate segregation for refuse streams produced within the development,
- Estimated volumes generated,
- Residential waste disposal methods
- PPWI design and AWCS integration
- PNPWI – including Refuse Collection Vehicle (RCV) access and manoeuvrability
- Refuse storage facilities design,
- Safety,
- Waste minimisation,
- Owner and tenant education, and

The report takes into consideration the associated workplace health and safety issues and cost implications of waste management processes and equipment to ensure safe and cost-effective solutions are in place for long term property management. Recommendations also ensure that noise and odour nuisances are mitigated, and that visual amenity is maintained and does not adversely affect the surrounding properties.

The recommendations for refuse collection relate to the operational phase of the development only and do not include additional requirements during or after demolition or construction phases, which requires its own separate plan.

Information contained within the report is based on local government authority requirements related to SCC and the associated waste infrastructure authority (WIA). The recommendations provided are designed to comply with Council's waste management policy and waste management code and the Prescribed Waste Infrastructure Standards (No3) 2019.

1.3. Site Location

The site is located at Lot 130 Mundoo Boulevard, Maroochydore as shown in Figure 1.1 and Figure 1.2. The property description is Lot 130 on SP 305312 and is located within the Maroochydore City Centre Priority Development Area. The site will have road frontages to Mungar Street, Fairway Drive, South Sea Islander Way and Market Lane. The site is currently occupied by informal car park and situated on a brownfield site.

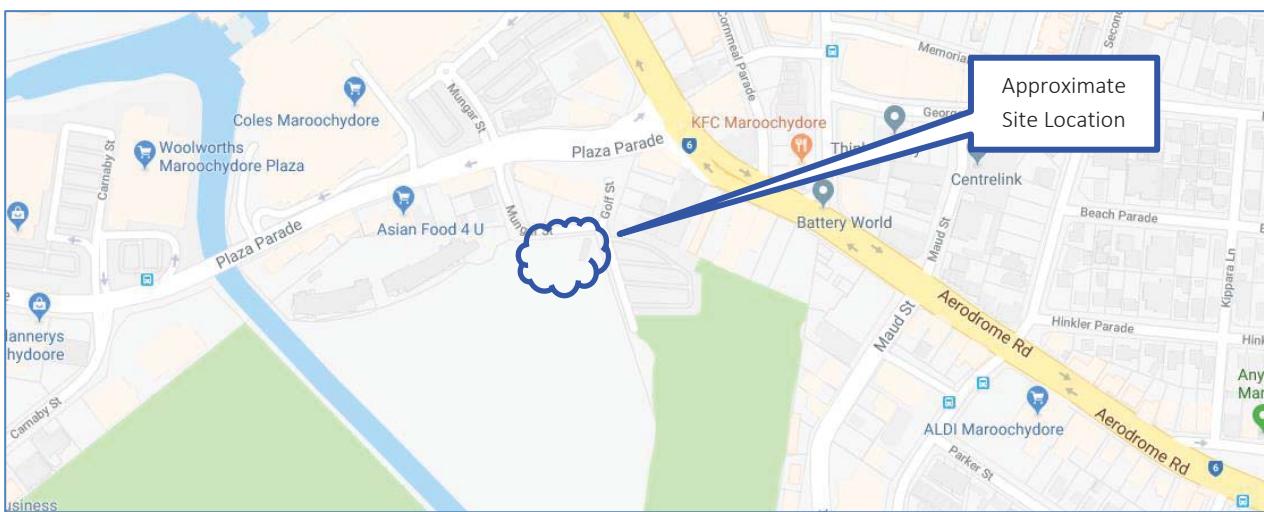


Figure 1.1: Site location (map view)



Figure 1.2: Site location (satellite view)

1.4. Development Summary

The development will consist of residential and commercial components including residential apartments in two separate towers (built in 2 stages), as well as residential townhouses (Stage 2b) and retail tenancies on the ground floor underneath Stage 2.

1.5. Development Refuse Profile

The tables below summarise the proposed development refuse profiles.

Table 1.1: Residential

Description	# Units	Generated Waste (L/week)	Generated Recycling (L/week)
Stage 1	65	7,800	3900
Stage 2	81	9,720	4860
Stage 2b	6	720	360
Total	152	18,240	9120

Table 1.2: Commercial Refuse

Description	Qty	Qty Type	Waste	Food Waste	Comingled Recycle
Restaurant	255	GFA	1785	1785	893
Professional Services / Medical Centre	215	GFA	226	75	376
Office	150		105	53	105
Total	620	GFA	2116	1913	1374

Section 6 of the report summarises the operational requirements for the entire development. All calculations and equipment requirements are based on approximate areas of the architectural drawings and associated waste generation as outlined in the detailed information in Appendix A. Site drawings can be found in Appendix B.

2. Refuse Storage, Systems and Collections

2.1. Refuse Storage

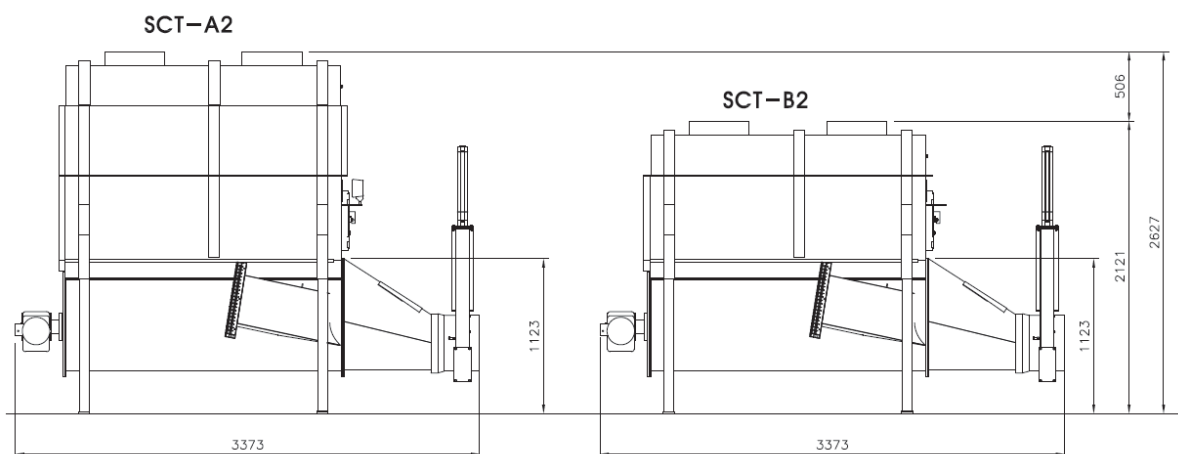
The development consists of storage areas for refuse below the two primary building cores.

Tower 1 refuse room is the primary storage and will include the PPWI with an underground pit to house connection equipment to the AWCS. In addition, the Tower 1 refuse room is located in a position that is accessible for refuse vehicle collections as described in Section 2.3.

Tower 2 refuse room is located for the discharge of the waste chute from Tower 2 and will be used for storage of exchange bins for both towers. The Tower 2 refuse room also has capacity for storage of bulky goods.

2.2. PPWI and AWCS Integration

PPWI consisting of 2 x Screw Tanks with Augers and associated inlets are proposed to be installed into the Tower 1 refuse room for integration with the AWCS. The pit area to be constructed beneath the refuse room will house the screw tanks for both waste (SCT-A2) and recycling (SCT-B2) as demonstrated in Figure 2.1. Concept drawings demonstrate waste room storage, capacity and configuration, including both AWCS and NON-AWCS equipment are shown in appendix C,. ENVAC have been directly consulted and are engaged to supply plan and section drawings to confirm the waste rooms meet the PWIS requirements, AWCS tank pit and connection design. Initial discussions confirm that the waste room size and configuration is considered adequate for proceeding to detailed design.



Source: ENVAC

Figure 2.1: Screw Tanks with Auger

2.3. Refuse Vehicle Access and Loading

The development will include service vehicle access within the driveway and a standing point adjacent to the tower 1 refuse room. Appendix E demonstrates that an Enclosed RCV, 8.8m in length and maximum height of 3.0m is able to perform a single reversing manoeuvre on-site and position next to the Tower 1 refuse room. Collections would then be completed from an identified safety zone and the RCV will subsequently leave the site in a forward gear.

The RCV access and subsequent collection requirements have been identified for all “non-AWCS” materials And will occur twice a week with an option for additional collections during festival or holiday periods if required.

2.4. Non-AWCS Servicing

All non-AWCS residential and commercial refuse will be collected by an agreed collection provider (Council or private contractor) with services to be completed twice a week.

On the day of service, all full refuse bins will be collected from the Tower 1 refuse room, as shown in Appendix B.1.

2.5. AWCS Servicing

AWCS equipment is detailed in Appendix C. Envac has been engaged to supply detailed specifications based on the concept drawings supplied. All refuse room configuration for the AWCS is designed to hold refuse volumes based on a maximum of 4 AWCS collections per day per refuse stream.

3. Residential Refuse

3.1. Generated Refuse Streams

Residential refuse for the proposed development originates from the residential apartments in Tower 1 and Tower 2, as well as the townhouses in Stage 2b. The building size and design determines that a dual waste chute is required for waste and recycling disposal. As outlined in Section 2.1, the AWCS inlet will be located in Tower 1.

The residential waste and recycling streams will discharge into 1100L bins and be transferred to the Tower 1 refuse room to be disposed into the AWCS inlets. Residential refuse may consist of the following:

Table 3.1: Generated residential refuse streams

Frequently Generated Refuse Streams	
General waste	General waste should be collected in a dedicated apartment bin which is typically placed within kitchen / laundry cupboards or under the sinks. Disposal of general waste will be via a waste chute and should be bagged and tied prior to placement into the hopper. To reduce risk of chute blockages or damage to bins under chute, the apartment bins should be sized to create a bag with minimised weight and does not exceed the dimensions of the waste chute.
Recycling (glass, aluminium and steel cans/tins/lids, paper/cardboard, semi rigid plastics)	Recycling should be collected in a dedicated receptacle next to the general waste to ensure separation from the waste material and must not be bagged. Recyclables should be placed loosely directly into the wheelie bin. Where applicable, other materials such as cardboard and plastics should be separated.
Organic waste	An alternate refuse disposal method, such as composting for organic waste , may be considered to reduce the total amount of general waste produced. Apartment style equipment is available for use where practical and space allows. Composting should be arranged with the building caretaker and further information can be found in Appendix C.1. All residential apartments will also be fitted with an insinkerator to dispose of food waste.
Infrequently Generated Refuse Streams	
Green waste	Green waste is not typically produced from multi-unit dwellings other than from surrounding building landscaped areas and is removed by a designated maintenance contractor.
Hard waste/bulky goods	Hard/bulky waste may be stored in a designated room or within the residential refuse rooms, with. Residents must coordinate all bulky goods movements and storage with the caretaker/s and Council. It is prohibited for residents to stack or pile bulky goods items on the footpaths, in driveways, in bulk bins, or in carparks. Unless otherwise instructed by Council, charitable organisations may be contacted by the building caretaker/s as a mode for collections.
Hazardous waste (paints, batteries and cartridges) and E-waste	The building caretaker will assist in the coordination of disposal of specialised / hazardous waste and e-waste such as recycling of electronic, liquid waste and paint/chemicals where required, due to safety and environmental reasons. Residents should be directed to Council's website for more details for appropriate waste and disposal.

3.2. Refuse Disposal

Residents will be supplied with adequate storage space within each apartment to accumulate at least one full day of waste and recycling (see Appendix C.1 for typical apartment bins). Residents will dispose of their waste via the waste chute hoppers on each floor (see Appendix B2 for typical chute access location).

Residents from the townhouses (2B) will transfer their waste and recycling directly to the Tower 1 ground floor refuse room. Residents will dispose of the waste and recycling via a letterbox type opening which will decant into 240L bins which will then be decanted into the AWCS inlets. Letterbox style access restricts the residents from entering the refuse room.

3.3. Transfer and Storage Process

The residential waste and recycling chutes will discharge into 1100L bulk bins located in the refuse rooms on the ground floor of each Tower.

Tower 1 will produce an estimated 1114L of waste per day, and an estimated 557L of recycling per day.

Tower 2 will produce an estimated 1389L of waste per day, and an estimated 694L of recycling per day.

A single 1100L bin under each chute is considered sufficient for both towers and the bins will be checked and emptied twice per day.

Full bins from Tower 2 will be transferred by building staff to the Tower 1 refuse room via the ground floor and loaded along with the Tower 1 bins into the AWCS Inlet (refer to Section 5). Waste from the townhouses will be taken directly to the Tower 1 refuse room and placed in bins for disposal as per above. As a redundancy option, bins may also be collected from the Tower 1 refuse room by an MRV sized RCV.

It is noted that bins under the chutes in Tower 1 are required to be partitioned from the remainder of the room, for safety purposes (Appendix C refuse room drawings indicate positioning of an internal wall or fine mesh cage). Plastic skirting should also be used at the bottom of the chute.

4. Commercial Refuse

4.1. Generated Refuse Streams

Commercial refuse for the proposed development originates from the tenancies on the ground floor. The waste streams for the commercial use may consist of the following:

Table 4.1: Generated commercial waste streams

Frequently Generated Waste Streams	
General waste	General waste should be collected in a dedicated receptacle within the allotted space and bagged or wrapped prior to disposal. Operationally, general waste should be bagged and not exceed the dimensions of the waste receptacles.
Commingled Recycling (glass, aluminium, steel, semi rigid plastics etc)	Recycling should be collected in a dedicated receptacle to ensure separation from the waste material and must not be bagged. Where applicable, other materials such as cardboard and plastics should be separated.
Paper and Cardboard	Consideration may be given to the use of a baler for cardboard, plastic film LDPE or HDPE recyclables (see Appendix C.1). Segregation and baling of these materials will reduce total waste output and may lower the total cost of refuse removal. Typically, a decision on the use of this equipment would be made at the start of the operational phase following review of the site final waste requirements and completion of appropriate risk assessments and operational procedures.
Organic waste	An alternate refuse disposal method, such as composting for organic waste , may be used to reduce the total amount of general waste produced: - Consideration may be given to the use of digesters, dehydrators or composters which are designed to recycle and reduce food waste. Digesters typically process the material into sludge while dehydrators remove liquid from food waste and both machines producing a solid fertiliser end product. See Appendix C.1 for further information. Pulping systems are available for back of house (BOH) use in food and beverage tenancies to allow for immediate disposal of heavy food waste elements of commercial refuse and is pumped into holding tanks for storage and collection via a 50mm pipe (see Appendix C.1 and C.7).
Waste cooking oil	Consideration should be given to the use of cooking oil collection (see Appendix C.1). All waste liquids / oils should be separated and stored in clearly labelled containers. Bunded areas or plastic pallets should be supplied for the storage of liquid waste/oils and stored in a level area and regularly inspected to ensure upkeep of its integrity and capable of storing of at least one-third of its contents.
Infrequently Generated Waste Streams	
Green waste	Green waste is not typically produced from a retail development other than from neighbouring building landscaped areas and is removed by a maintenance contractor.
Clinical / hygiene	Clinical / hygiene waste bins for the medical centre as shown in Appendix C.1, may be placed as required in various locations or within the staff areas. Larger clinical waste bins can be stored within a separate room or refuse room whilst small transferable clinical and sharps containers will be placed in staff / examination rooms. Clinical/hygiene waste bins can be transferred to the refuse room for storage prior to collection or alternatively site management may choose to have these bins collected directly from each floor level on a “walk in/ walk out” basis by the designated contractor.
Hard waste/bulky goods	Hard waste will be coordinated with the building management and removed by the designated maintenance contractor.
Hazardous waste (paints, batteries and cartridges) and E-waste	Where applicable, tenants usually make their own arrangements for the disposal of specialised / hazardous waste and e-waste such as recycling of toner cartridges and batteries. Building management will organise and assist with disposal of hard, electronic, liquid waste and any paint/chemicals. Hazardous waste must be handled with due care, separated and securely stored for collection by a specialist waste contractor.

4.2. Refuse Disposal

Typically, tenants will use bins up to a max size of 60L that are placed within service / desk areas, eating / kitchen areas, or back of house areas, where space is available. Each tenant will be responsible for storage of refuse produced during operating hours within their own tenancy area.

4.3. Transferral and Storage Process

Site staff or cleaners will transfer all refuse from the tenants back-of-house areas to the tower 1 refuse room. All materials will be placed in the appropriate AWCS or Non-AWCS holding vessels.

5. Recommended Design Requirements

5.1. AWCS System & Integration

5.1.1. Private Pneumatic Waste Infrastructure

It has been identified that the PPWI requires both integration with the AWCS and be able to provide a service redundancy option allowing the building waste operations to revert to standard collections using an MRV Pantech style vehicle. The service redundancy to account for initial commissioning and potential future operating maintenance or failures of the AWCS is considered to be essential to the design of the PPWI.

The following recommendation reflects the provision of preliminary design information as required under Schedule 3 of the SCC Prescribed Waste Infrastructure Standards (No 2) 2018. The OWMP will be amended during the detailed design stage to include relevant information and outcomes as described.

Concept drawings demonstrate waste room storage, capacity and configuration, including both AWCS and NON-AWCS equipment, to meet the PWIS requirements. ENVAC have been directly consulted and are engaged to supply plan and section drawings to confirm the waste room, AWCS tank pit and connection design. The waste room size and configuration is considered adequate for proceeding to detailed design.

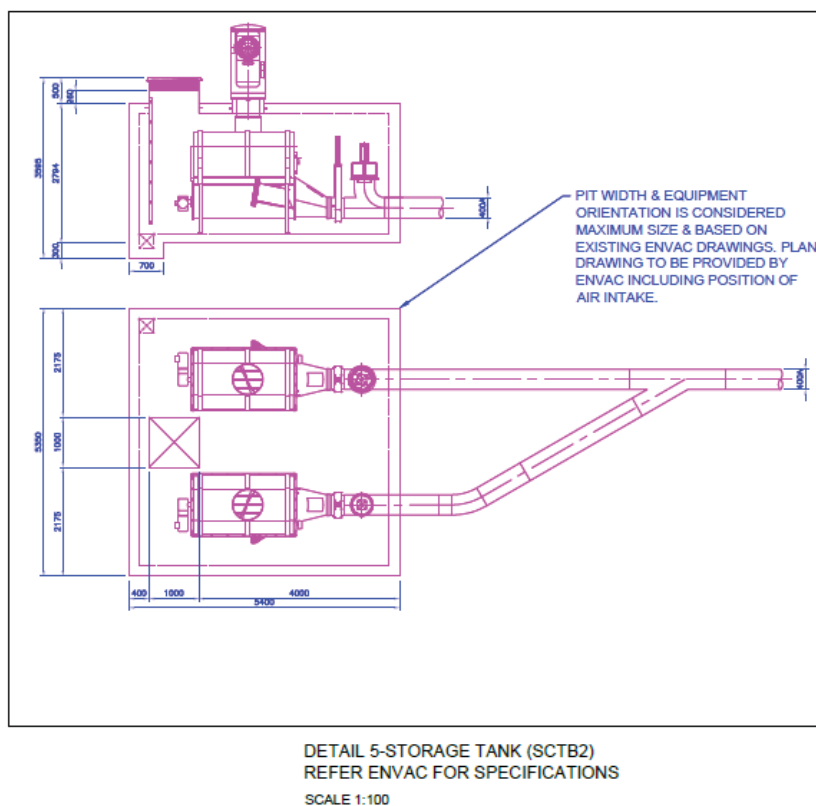


Figure 5.1: Excerpt, TTM Detailed Specifications Sheet 2-2, 18BRW0034-08

5.1.2. AWCS External Connection

The proposed site will be connected to the AWCS on Market Lane, which is shown below in Figure 5.2. and Figure 5.3. All relevant integration items will be addressed during the detailed design coordination for the PPWI as described in section 5.1.1, including the summary of items as shown below:

- Storage Sections,
- Discharge Valves,
- PN Connections,
- Air Inlet Valves,
- Electrical and Control Systems,
- Below ground pits and inspection / maintenance requirements, and
- Connection pipe angle relative to negative pressure of the AWCS.

TTM have been provided with an indicative inlet pipe detail is shown in Figure 5.2, which will connect to the external connection point.

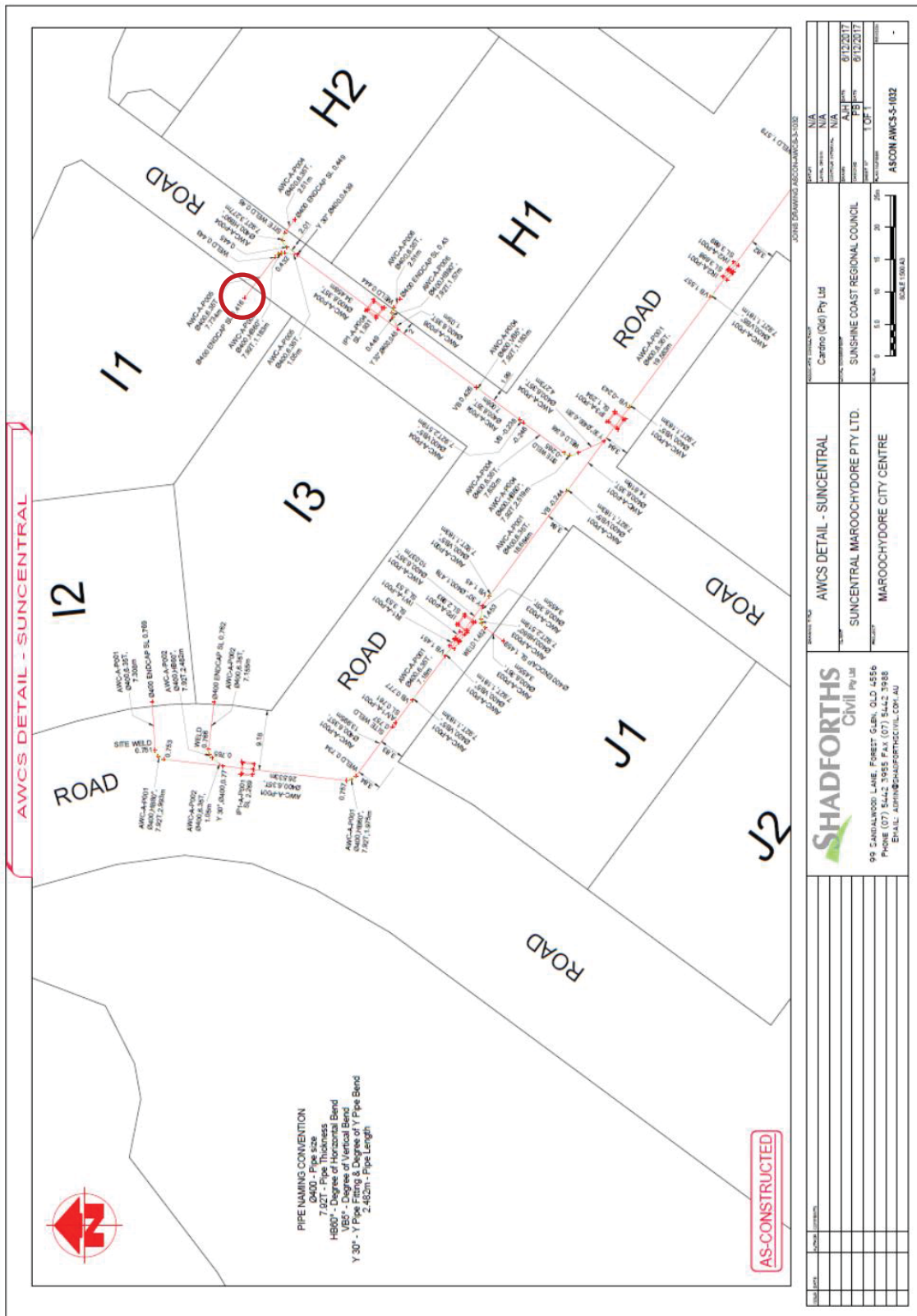


Figure 5.2: End Cap Connection Point to AWCS (Refer to Appendix E, TTM Drawing 18BRW0034-09 for indicative placement – to be confirmed by Envac and Shadforths)

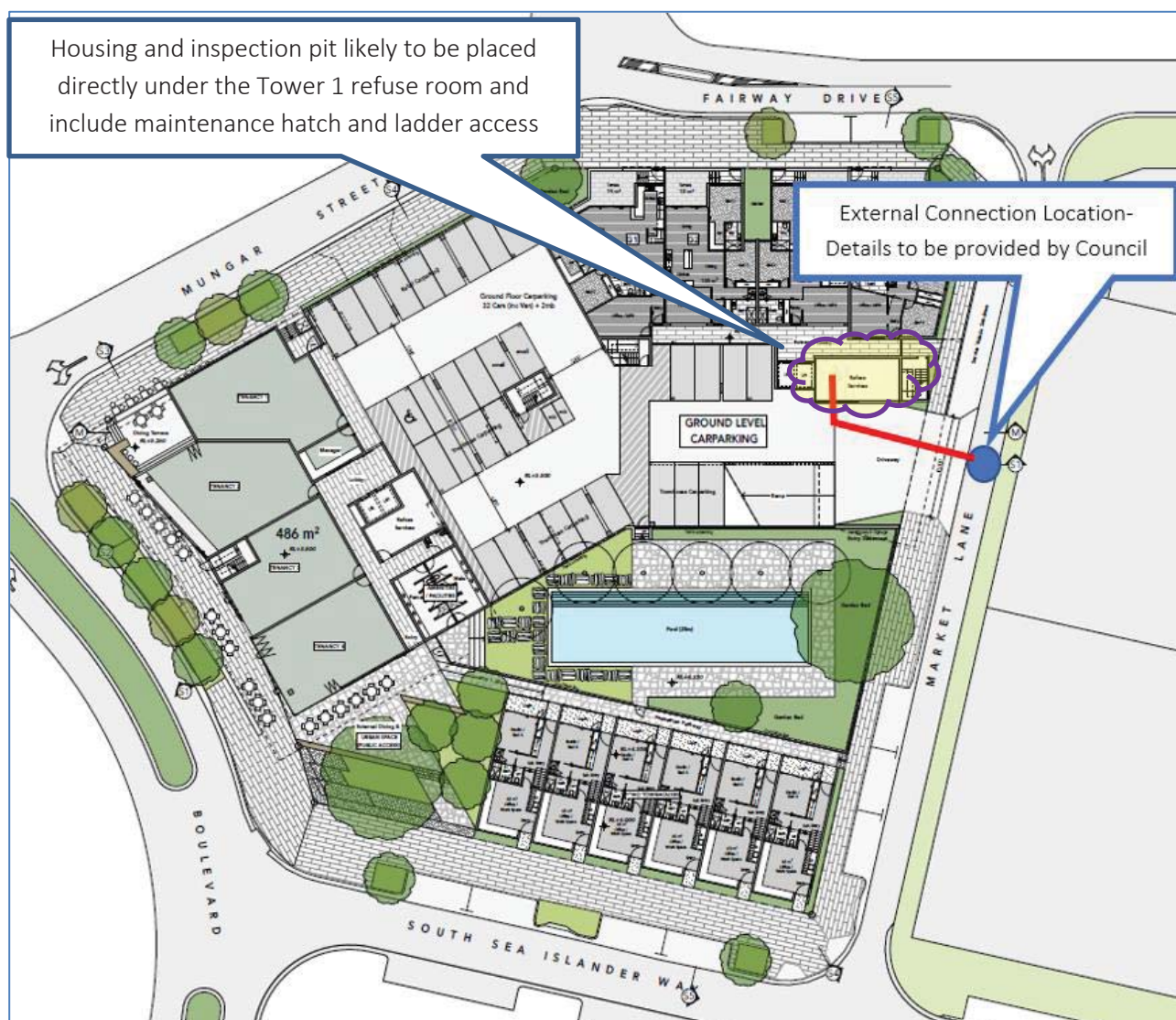


Figure 5.3: Indicative Location of Internal and External Connection Point

5.2. AWCS Exclusion Items (Non-AWCS Disposal)

- Bulk cardboard (>300mm in any dimension, of >10kg / week)
- Bulk glass (10% or more total waste weight or volume)
- Other bulk waste (>300mm in any dimension)
- Clinical waste (direct collection)
- Construction and demolition waste (assessed on a case by case basis, and skip bins delivered as required)
- Organic waste (e.g. food scraps, waste cooking oil)

- Regulated waste (e.g. chemicals, hazardous waste)

These materials will be disposed into bins ranging from 60L to 1100L (see Appendix **Error! Reference source not found.** for examples) located in the refuse room, washed into the sewage system (food waste) or disposed via direct collection by collection drivers.

5.3. Waste Chute

The waste chute will not have direct connection to the AWCS systems for the purposes of separation for inspection and AWCS operation redundancy. The waste chute will have the following features:

- Adequate strength for its purpose, including additional reinforcing where necessary at joints, bends and hopper intersections;
- Insect and vermin proof;
- Constructed and installed to prevent the following during use and operation of the system:
 - Transmission of vibration to the structure of the premises; and
 - Limits excessive odour excessive noise to the occupants of the building;
- Installed in a fire rated duct and ventilated in compliance with building requirements of the Building Code of Australia;
- Comply with the waste chute manufacturer's technical specifications and /or operational limitations, including installation design features and ancillary equipment required to prevent blockages and noise disturbances;
- Fitted with a shutter at the base of the chute for closing off the chute manually during bin exchange and automatically in the case of fire;
- Discharge centrally above the waste containers in the waste storage room;
- Hoppers to be:
 - Provided on each residential floor and be located in a freely ventilated position in the open air or in a dedicated room or compartment;
 - Be easily accessed by the occupants of each unit;
 - Be separate from any habitable room or place used in connection with food preparation or living areas;
 - Be designed and installed so as to:
 - Close off the service opening in the chute when the device is open for loading;
 - Be between 1.0m and 1.5m above floor level;

- Automatically return to the closed position after use;
 - Permit free flow in to the chute;
 - Not project into the chute, and
 - Allow easy cleaning of the device and the connection between the service opening and the chute.
- Have the largest dimension of the service opening (the diagonal of a rectangular opening) not exceeding 0.75 diameter of the chute with which the hopper is connected;
 - Have a surround on the wall around the hopper that is at least 300mm wide and made of glazed tiling or other impervious material that can easily be cleaned;
 - Have a floor adjacent to the hopper that is paved with hard impervious materials with a smooth finished surface; and
 - If located within a waste disposal room, be ventilated and finished with an impervious material covered at all angles.

5.4. Refuse Rooms

The refuse rooms will have the following features in order to minimise odours, deter vermin, protect surrounding areas, and make them a user-friendly and safe area:

- Enclosed rooms will be fire rated and ventilated in accordance with the National Construction Code-Building Code of Australia;
- Doors must be wide enough to allow for the easy removal of the largest container to be stored;
- The walls, ceilings, floors and equipment are to be designed and constructed of impervious material with a smooth finish to allow for easy cleaning;
- Door frames are metal, hardwood or metal clad softwood, situated in an external wall;
- Door frames are rebated with a lock capable of being activated from within the room without a key at all times;
- Rainfall and other surface water cannot flow into the waste rooms;
- The floors are to be graded to fall to a drainage point;
- Drainage points connected to sewer in accordance with trade waste requirements;
- A hose cock must be provided directly outside the rooms for cleaning bins and the room;
- Adequate artificial lighting;

- Not located adjacent to or within any habitable portion of a building or place used in connection with food preparation (including food storage);
- Permit unobstructed access for removal of the containers to the service point; and
- Will be attractively designed to minimise their visual impact on the surrounding areas.

Note: Tower 1 refuse room may consist of a structural / removable mezzanine floor to allow for access to the AWCS equipment in the pit below.

5.5. Bin Collection / Storage Room

The bin collection point is designed to ensure ease of access for the waste and recycling bins that require servicing. It will have the following features:

- Is a constructed hardstand area and bins can be manoeuvred for servicing without lifting the bin over raised surfaces (i.e. no steps or lips);
- Is located at least 5 metres from any door, window or fresh air intake within the development or any adjoining site;
- Is screened to ensure bins are not visible from a public place, neighbouring properties, passing vehicles or pedestrian traffic external to the site;
- Of sufficient size to accommodate the bins;
- Can be fitted with bump rails to protect the walls/surrounds from bins causing damage;
- Positioned on a level pad and is not more than 15m from the loading/servicing zone;
- Has sufficient access and clearance for the waste and recycling collection vehicles to service the bins, and does not have obstructed overhead space;
- Allows bins to be serviced safely while minimising the impediment to traffic flow during servicing as it is within the designated loading / carriageway area;
- Is clearly separated from car parking bays, footpaths and pedestrian access;
- Is clear of speed control devices;
- Does not block the entry and exit to the property; and
- Is positioned away from entrances to shops or residential premises.

5.6. Bin Carting Route

The bin carting route has the following features:

- Is via the hard stand; and

- Does not have any lips, stairs/steps and minimal gradients (maximum 1:14 along bin travel route).

Though not essential, bin moving equipment such as bin tug may be required for transferring bulk bins to and from refuse rooms.

5.7. Bin Wash

A bin wash will be provided within the refuse chute room and will have the following design elements:

- Constructed hardstand area with a solid concrete base;
- Graded to fall to a drainage point within the storage point;
- Drainage point connected to sewer in accordance with trade waste requirements;
- Provided with a hosecock for cleaning;
- Is in a purpose-built storage area which is air locked, fly and vermin proofed, and used solely for the storage of waste; and
- Is in a well-ventilated portion of the basement and not within ten (10) metres of an opening to a food premises or food handling area.

5.8. Storm Water Prevention and Litter Reduction

Designated personnel/ cleaners are responsible for on-site storm water pollution and litter reduction. To limit the impact on the environment and site, the following measures should be taken into account:

- Providing adequate signage to promote litter control;
- Providing sufficient refuse bins in appropriate areas;
- Preventing unauthorised entry to waste areas;
- Monitoring waste and prevent waste overflow;
- Promoting best practices for waste minimisation; and
- Installing litter traps in car parks for any unwanted discharge.

5.9. Ventilation

Natural (unobstructed, permanent openings direct to external air no less than one-twentieth (1/20) of floor area) or mechanical ventilation (minimum rate of 100 L/s and 5L/m² exhausting rate) must be provided to waste storage areas unless refrigerated below four degrees Celsius.

Note: Ventilation is also subject to AWCS air intake requirements.

6. Recommended Operational Requirements

6.1. On-going Management

All refuse equipment movements are to be managed by the building manager/caretaker or cleaners at all times. The building manager/cleaner duties include, but are not limited to the following:

- General maintenance and cleaning of all refuse rooms and areas - including hoppers on each residential level (frequency dependent on waste generation and is determined based upon building operation);
- Organising, maintaining and cleaning the general and recycled waste holding areas (frequency will depend on waste generation and will be determined based upon building operation);
- Organising both garbage and recycled waste pick-ups as required;
- Cleaning, decanting and exchanging all bins;
- Organising and coordinating bulky goods collections;
- Ensuring site safety for residents, children, visitors, staff and contractors;
- Abiding by all relevant OH&S legislation, regulations, and guidelines;
- Assessing any manual handling risks and preparing a manual handling control plan for waste and bin transfers;
- Providing to staff/contractor's equipment manuals, training, health and safety procedures, risk assessments, and PPE to control hazards associated with all waste management activities; and
- Continual monitoring of equipment uses and scheduling to ensure best operational outcomes.

Note: As waste volumes may vary according to the development occupants' attitudes to waste disposal and recycling, bin numbers and sizes may need to be altered to suit the building operation.

6.2. Waste Minimisation

Waste minimisation is an important part of any site operation. At a minimum, the following should be implemented.

6.2.1. Education

On-going education is important to ensure people continue to use the facilities as originally intended. All body corporate and leasing contracts should contain clauses pertaining to waste management arrangements and use of any associated equipment. An education and communication plan is available from Sunshine Coast Council and is included in Appendix F.

6.2.2. Monitoring and Review

Regular monitoring and inspections of waste and related equipment and facilities from the development should be conducted by building management/designated staff for maintenance and sustainability, including but not limited to bin volumes, refuse storage areas and stormwater management.

Waste minimisation requires regular reviewing to ensure operational sustainability of refuse volumes and equipment and economic feasibility. It is recommended that refuse weights and movements are recorded and reviewed. An external review is usually conducted 12 to 18 months after the implementation of the plan.

6.2.3. Signage

All receptacles and bins should have adequate signage, with appropriate labelling, which is clear and easy to read. Standard signage is to be provided in and around waste collection and storage areas (see Appendix D).

6.3. Safety

Note that transferring refuse bins is considered a hazardous manual task and therefore contractors must ensure a full risk assessment of equipment, surfaces and related gradients is complete. The contractor must provide procedural documentation to appropriate personnel prior to delivery of equipment and occupancy of the development.

6.4. Operational Equipment Summary

Equipment required or suitable for use as part of the operational phase of the development is outlined below. Note that all collection receptacles and bins should be branded with the appropriate stickers.

Table 6.1: Operation equipment

Component	Description	Quantity	Notes
	Green waste	Subject to final operational requirements	
	Organics – receptacles for use in centralised composting / worm farm or electronic composting bins (optional)	Supplied as and if required See Appendix C.1	
	Waste chute	2 (1 per tower)	See Appendix C.2
	PPWI / AWCS Loading and Inlet Station/s (Waste and Recycling)	2	
	AWCS Inlet Integration System	1	See Appendix C.3
Commercial	Recycling bins	2	1100 L bins See Appendix C.1
	Waste bins	2	
	Baler (optional)	1	See Appendix C.1
	Green waste	Subject to final operational requirements	

	Organics – receptacles for use in centralised composting / worm farm or electronic composting bins (optional)	Supplied as and if required See Appendix C.1	
	Digester or Dehydrator (optional)	1	See Appendix C.1
	Pulp master System (optional)	1	

6.5. Operational Equipment Suppliers Summary

Typical equipment suppliers for use as part of the operational phase of the development are outlined below and are not limited to the following:

Table 6.2: Typical equipment suppliers

Company Name	Equipment	Link
Wastepec	Bin Press	https://wasteinitiatives.com.au/product/waste-compactors/6601100l-bin-press
Elephants Foot Recycling Solutions	Chutes & Bin Rotation Equipment, Balers, Compactors, Bin Lifters, Weighing Systems	http://www.elephantsfoot.com.au
Wastech	Chutes & Bin Rotation Equipment, Balers, Compactors	http://wastech.com.au/
Pakmor	Balers, Compactors, Bin Lifters, Weighing Systems, Shredders	http://pakmor.com.au/
Miltek	Balers and Compactors for waste and recycling i.e. Cardboard, Plastic, Polystyrene, Medical Waste	http://www.miltek.com.au/
Closed Loop Organics	Industrial and Domestic Composters	http://www.closedloop.com.au/domestic-composter
MOVEXX	Bin Towing, Trailers and manual handling equipment	http://www.movexx.com.au/
J.J. Richards	Pulpmaster	http://www.pulpmaster.com.au
Ace Waste	Specialised/hazardous waste collection and disposal	http://www.acewaste.com.au/
Absorbenviro	Containment, Absorbents, Drain Protection	http://www.absorbenviro.com.au/
Trade Environmental	Spill Response, Spill Containment, Storm water Management	http://www.tradeenviro.com.au/bunded-pallets/
Spill Station Australia	Spill Response and Containment Equipment	www.spillstation.com.au
ENVAC	AWCS	Refer to Council

Appendix A Detailed Refuse Calculations

The generation rates used for the calculation of refuse produced uses rates recommended by Sunshine Coast Waste Infrastructure Authority.

RESIDENTIAL

Description		Number of Units	Waste Reference (L / Unit)	Generated Waste (L / Week)	Generated Waste (L / Day)	Recycling Reference (L / Unit)	Generated Recycling (L / Week)	Generated Recycling (L / Day)	Food Waste Reference (L / Unit)	Generated Food Waste (L / Week)	Generated Food Waste (L / Day)
Stage 1		65	120	7800	1114	60	3900	557	0	0	0
Stage 2		81	120	9720	1389	60	4860	694	0	0	0
Stage 2b		6	120	720	103	60	360	51	0	0	0
Subtotal		152		18240	2606		9120	1303		0	0

COMMERCIAL

Description		GFA (m2)	Waste Reference (L / Unit)	Generated Waste (L / Week)	Generated Waste (L / Day)	Recycling Reference (L / Unit)	Generated Recycling (L / Week)	Generated Recycling (L / Day)	Food Waste Reference (L / Unit)	Generated Food Waste (L / Week)	Generated Food Waste (L / Day)
Restaurant		255	100	1785	255	50	893	128	100	1785	255
Professional Services / Medical Centre		215	15	226	32	25	376	54	5	75	11
Office		150	10	105	15	10	105	15	5	53	8
Subtotal		620		2116	302		1374	196		1913	273

Total

		Generated Waste (L / Week)	Generated Waste (L / Day)	Generated Recycling (L / Week)	Generated Recycling (L / Day)	Generated Food Waste (L / Week)	Generated Food Waste (L / Day)
Total		20356	2908	10494	1499	1913	273

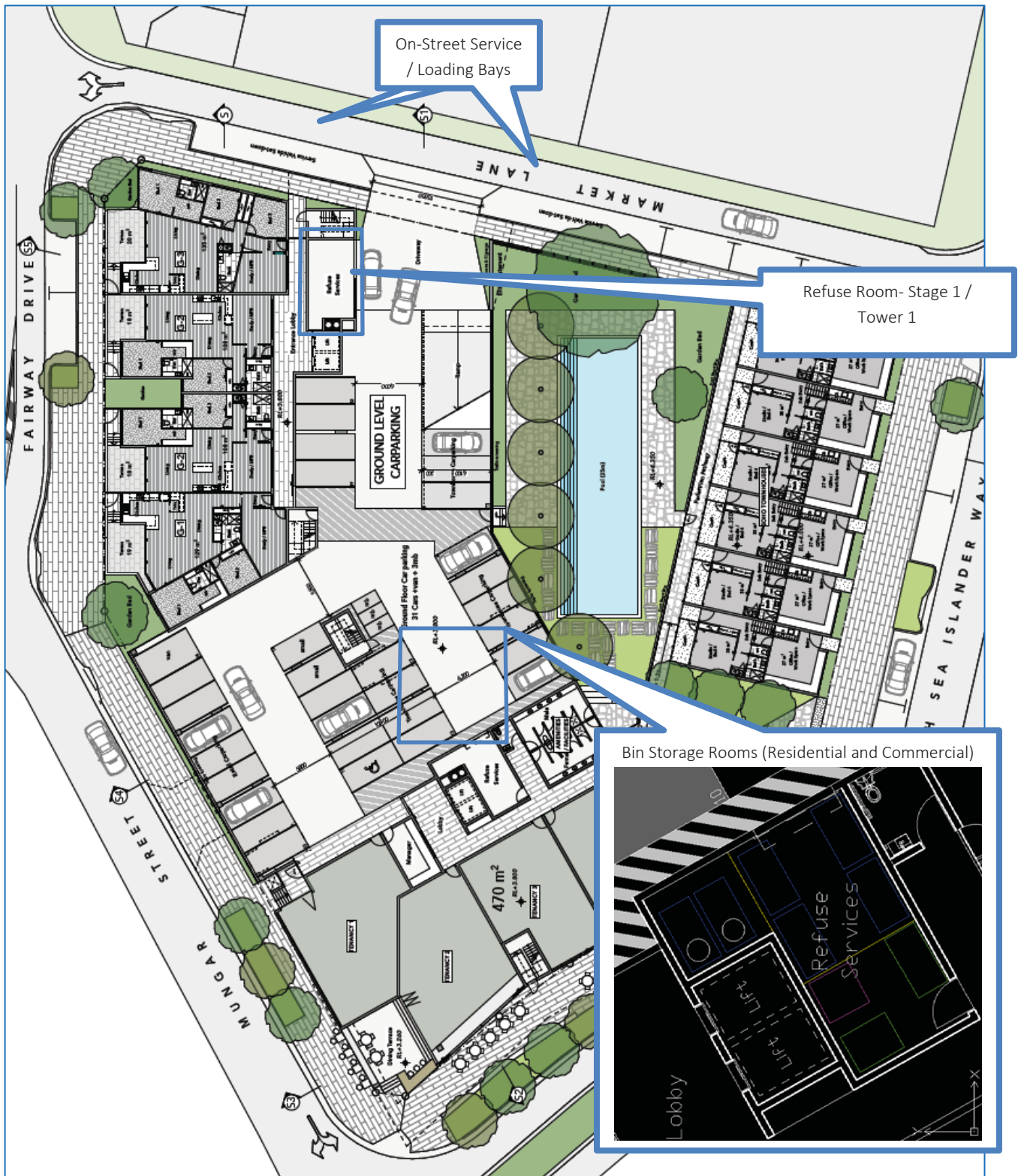
Product	Generation Rate (%)	Waste (L / Day)	Recycling (L / Day)	Total (L / Day)	Total (L / Week)	Comment
Glass	11.70%	35	23	58	408	Commercial only
Cardboard	10.40%	302	156	458	3208	Residential & Commercial
Medical Waste						Separate Collections
Waste Oil						Separate Collections
Total Non-AWCS Waste / Recycling (L / Day)		338	179	517	3617	
Total AWCS Waste / Recycling (L / Day)		2570		1320		

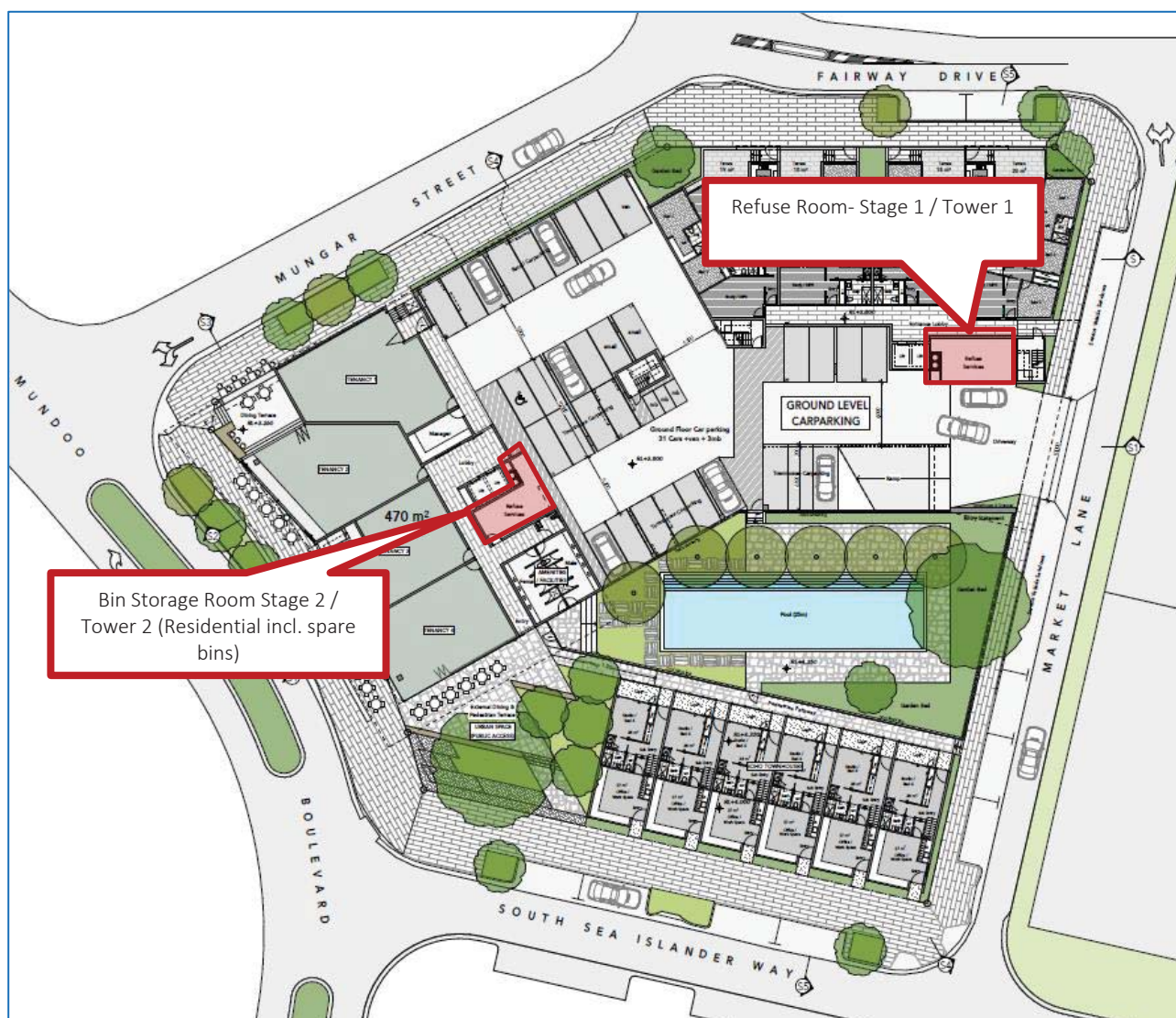
Description

Volume (L)	Waste Services per Day	Recycling Services per Day
PN Connector	12.9	6.6
PN Connector	9.9	5.1
PN Connector	6.4	3.3
PN Connector	4.9	2.5
Screw Tank (SCTB2)	1.8	0.9
Screw Tank (SCTA2)	1.2	0.6

Appendix B Floor Plans

B.1 Ground Floor





Source: k architecture studio—drawing #SK05, revision A, dated 4/12/18 – Ground Floor

B.2 Typical Level



Source: k architecture studio—drawing #SK09, revision A, dated 4/12/18 – Level 4-10

Appendix C Refuse Systems and Specifications

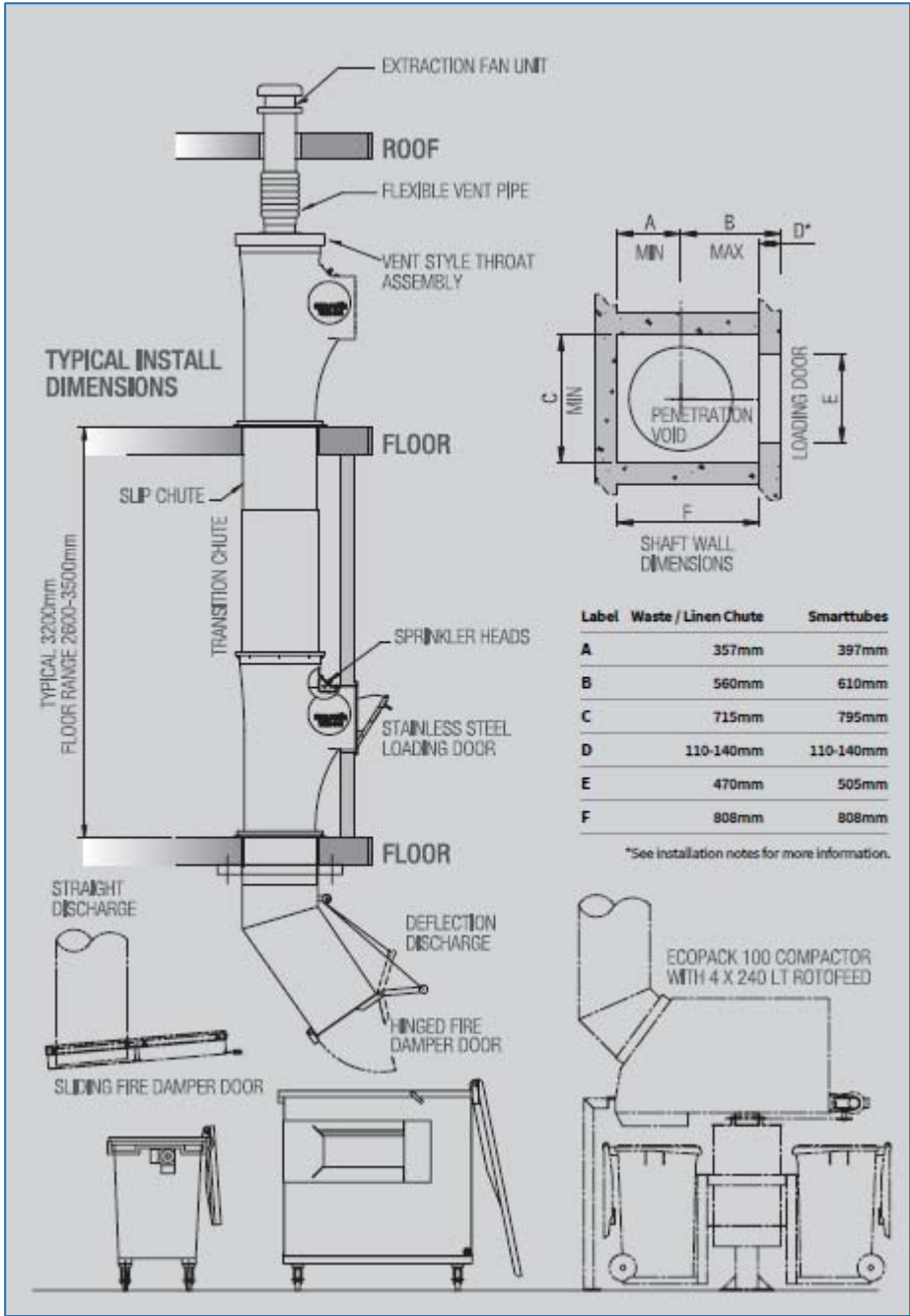
C.1 Bin Types / Systems

Example System/ Service	Waste stream	Example	Provided by
Apartment bins	Waste and recycling		Various in-built and stand alone options available
120L/240L bins	Recycling		Council
1100 L MGB	Waste and recycling		Dimensions approx.. 1280 x 1360 x 1465 mm (L x W x H))

Cookers- Bulk Oil System (as required)	Waste Oil		Cookers https://www.cookers.com.au/oil-management-systems/food-service
Balers (optional)	Cardboard and Plastic		Various
Clinical / Hygiene Waste	Clinical / Hygiene		https://www.ehp.qld.gov.au/assets/documents/regulation/pr-gl-clinical-and-related-waste.pdf
AWCS Vacuum System		See Appendix C.3	Envac

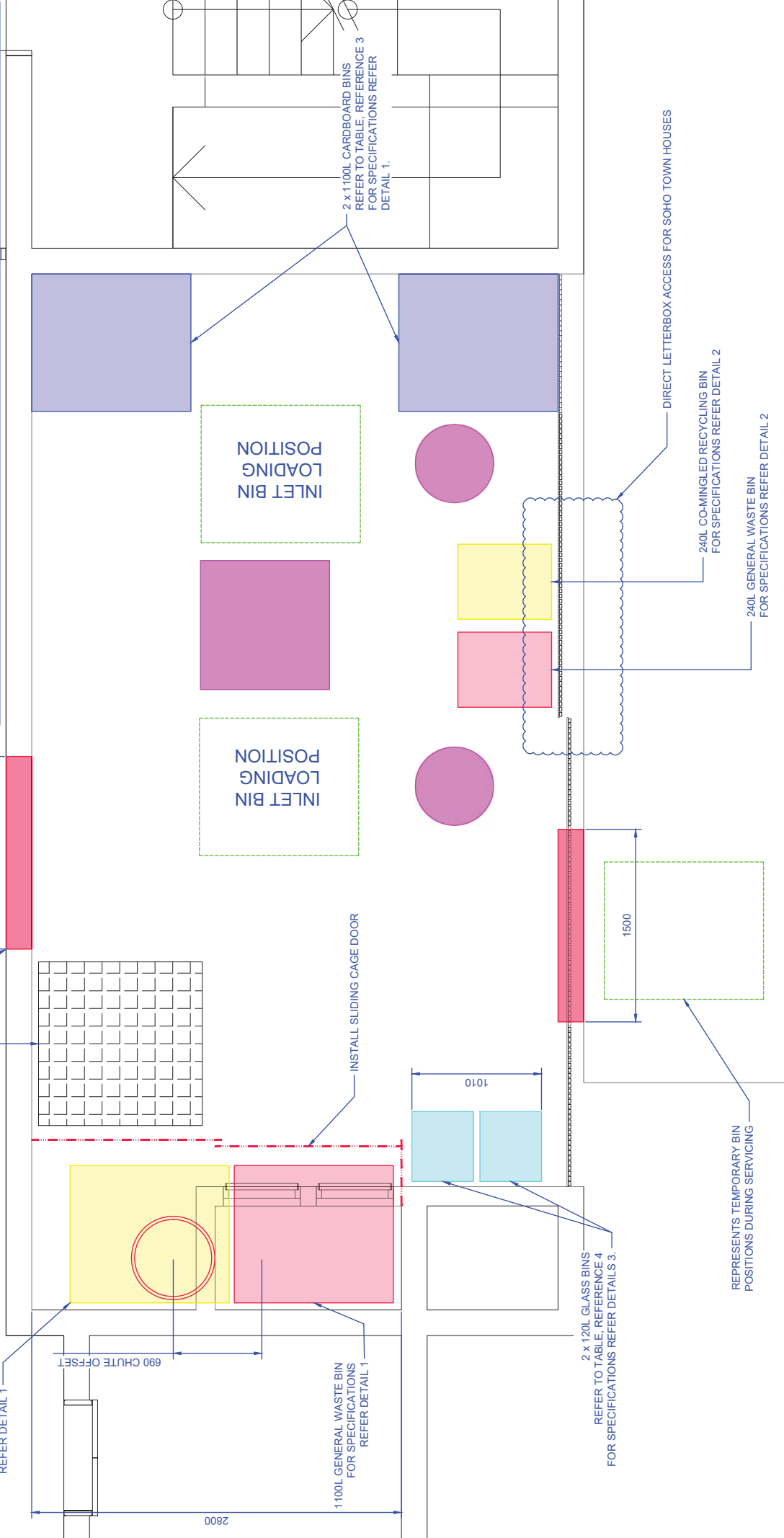
C.2 Refuse Chutes and Compactors

Typical Chute Assembly

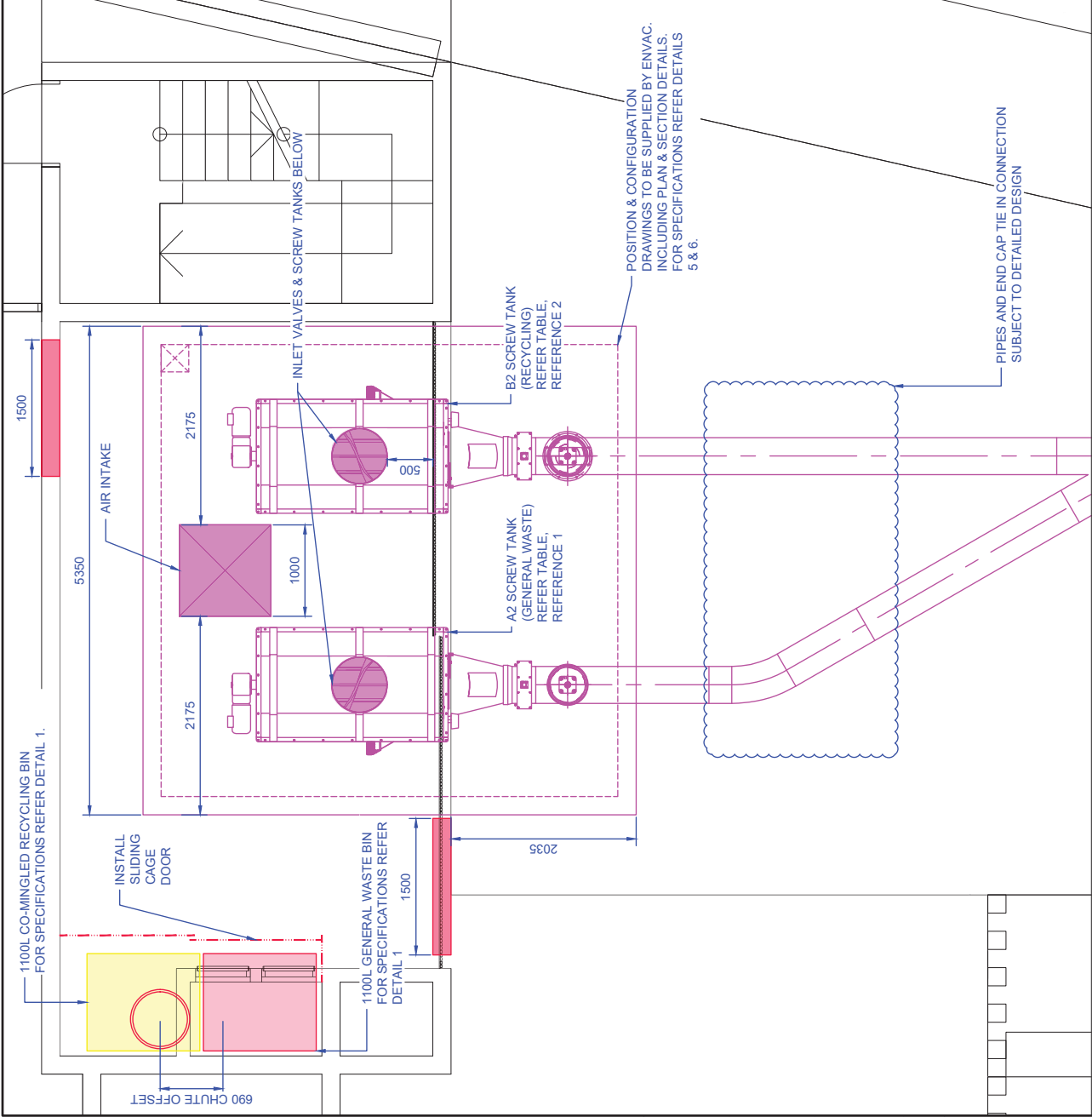


C.3 Refuse Room Configuration and AWCS Integration

VOLUMES, CAPACITY & COLLECTIONS						
REFERENCE NUMBER	MATERIAL	VOLUMES PER DAY (ESTIMATED)	COLLECTION FREQUENCY	VOLUME PER COLLECTION	CAPACITY PER COLLECTION	EQUIPMENT
1	WASTE	2570L	2 X PER DAY	1285L	1440L	AWCS - SCREW TANK (SCT-A2)
2	CO-MINGLED RECYCLING	1320L	2 X PER DAY	660L	1440L	AWCS SCREW TANK (SCT-B2)
3	CARDBOARD	458L	2 X PER WEEK	1832L	2200L	1100L MGB
4	GLASS	58L	2 X PER WEEK	232L	240L	120L MGB
5	WASTE OIL	20L	ADHOC	20L	240L	BUNDED PALLET



TTC CONSULTING PTY LTD ABN 65 010 888 021 LEVEL 8, 369 Ann Street, BRISBANE, QLD, 4000 P.O. BOX 12015, BRISBANE, QLD, 4003 T: (07) 3327 9500 F: (07) 3327 9501 E: ttmbrs@ttmgroup.com.au W: www.ttmgroup.com.au		LOT 130 MUNDOD BOULEVARD, MAROOCHYDORE		PROJECT NUMBER 18BRW0034	ORIGINAL SIZE A3
Habitat Development Group Pty Ltd		WASTE ROOM CONFIGURATION TWICE WEEKLY SERVICING BASED OFF OPTION 5 WASTE ROOM GENERAL CONFIGURATION		DRAWING NUMBER 18BRW0034-07	REVISION A
SCALE 0 0.3 0.6 0.9 1.2 1.5m SCALE 1:50 AT ORIGINAL SIZE				DATE 14 May 2019	SHEET 1 OF 1
AMENDMENT DESCRIPTION					
REV	DATE	ORIGINAL ISSUE			
A	14-05-19				



VOLUMES, CAPACITY & COLLECTIONS					
REFERENCE NUMBER	MATERIAL	VOLUMES PER DAY (ESTIMATED)	COLLECTION FREQUENCY	VOLUME PER COLLECTION	CAPACITY PER COLLECTION
1	WASTE	2570L	2 X PER DAY	1285L	1440L
2	CO-MINGLED RECYCLING	1320L	2 X PER DAY	660L	1440L
3	CARDBOARD	458L	2 X PER WEEK	1832L	2200L
4	GLASS	58L	2 X PER WEEK	232L	240L
5	WASTE OIL	20L	ADHOC	20L	240L
					BUNDLED PALLET
					1

- NOTES:
- COST & CAPACITY OPTION 5
 - GENERAL WASTE: SCT-A2
 - RECYCLING: SCT-B2
 - CONCEPT DRAWINGS DEMONSTRATE WASTE ROOM STORAGE, CAPACITY AND CONFIGURATION, INCLUDING NON AWCS EQUIPMENT, TO MEET THE PWIS REQUIREMENTS. ENVAC HAVE BEEN DIRECTLY CONSULTED AND ARE ENGAGED TO SUPPLY SECTION DRAWINGS TO CONFIRM THE WASTE ROOM, AWCS TANK PITS AND CONNECTION DESIGN.
 - A2 & B2 SCREW TANK POSITIONS ARE INDICATIVE ONLY AND SUBJECT TO CONFIRMATION FROM ENVAC. MAGENTA DETAILS ON THE PLAN REPRESENT ENVAC EQUIPMENT.

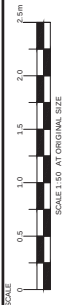
SUBTERRANEAN STORAGE TANK-CONCEPT DRAWING
SCALE 1:50

PROJECT		PROJECT NUMBER		ORIGINAL SIZE	
LOT 130 MUNDOO BOULEVARD, MAROOCHYDORE		18BRW0034		A3	
SUBTERRANEAN STORAGE TANK CONCEPT DRAWING		DRAWING NUMBER		REVISION	
A2 & B2 SCREW TANK LOCATION AND QUANTITIES		18BRW0034-06		A	
REV		DATE		SHEET	
A		14 May 2019		1 OF 1	

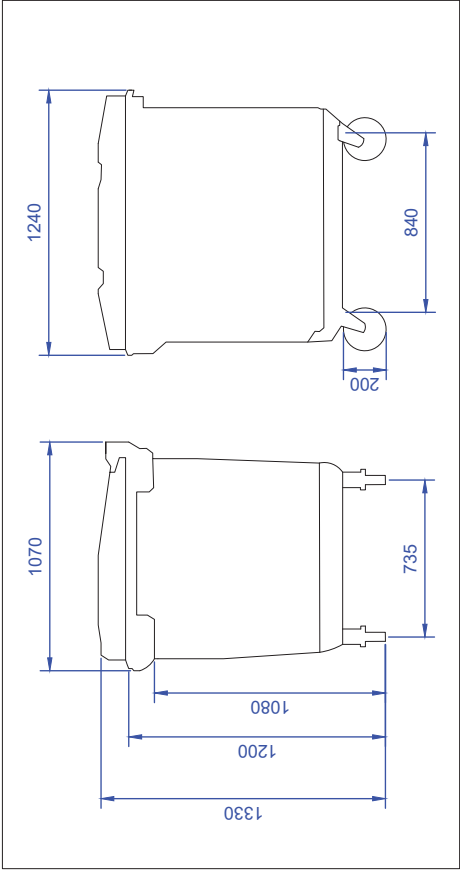
TIM CONSULTING PTY LTD
ABN 65 010 888 021
LEVEL 8, 369 Ann Street, BRISBANE, QLD, 4000
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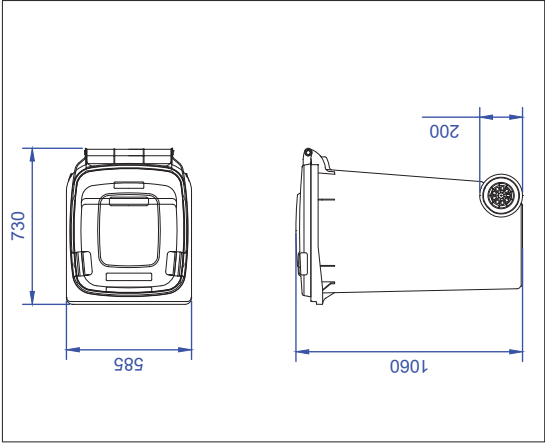
Habitat Development
Group Pty Ltd



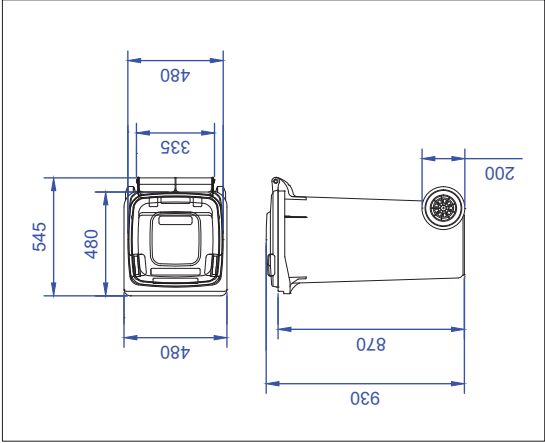
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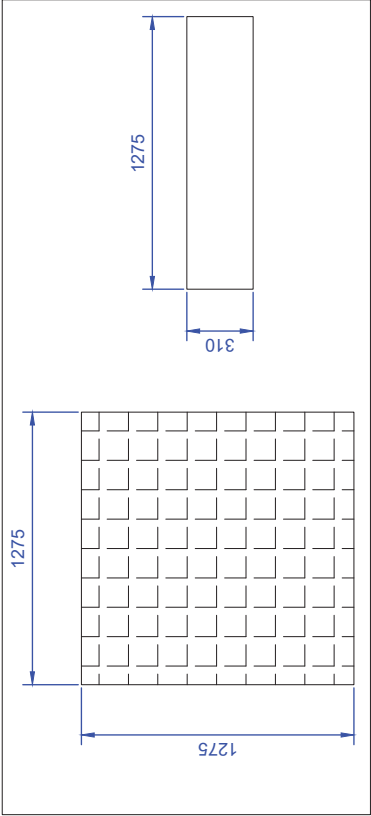
DETAIL 1 - 1100L SULO BIN
SCALE 1:25



DETAIL 2 - 240L SULO BIN
SCALE 1:25



DETAIL 3 - 120L SULO BIN
SCALE 1:25



DETAIL 4-BUNDED PALLED
REFER MHA PRODUCTS FOR SPECIFICATIONS
SCALE 1:25

LEGEND:

GLASS

RECYCLING

WASTE

PAPER

NOTE:
DETAILS FOR INFORMATION ONLY. FOR
SPECIFICATIONS REFER TO SUPPLIER.

PROJECT		PROJECT NUMBER		ORIGINAL SIZE	
LOT 130 MUNDOO BOULEVARD, MAROOCHYDORE		18BRW0034		A3	
DRAWING TITLE		DRAWING NUMBER		REVISION	
DETAILS/SPECIFICATIONS SHEET		18BRW0034-08		A	
DATE		DATE		SHEET	
14 May 2019		14 May 2019		1 OF 2	

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SCALE

0 0.25 0.5 0.75 1.0 1.25m

SCALE 1:25 AT ORIGINAL SIZE

CLIENT

Habitat Development Group Pty Ltd

NORTH

REV

DATE

ORIGINAL ISSUE

AMENDMENT DESCRIPTION

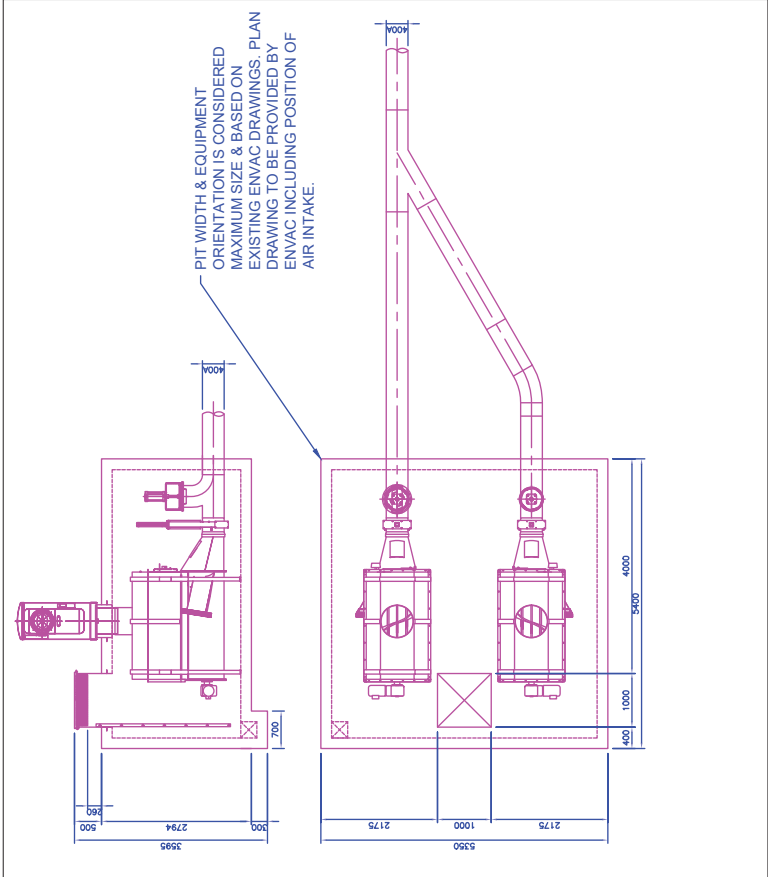
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SK

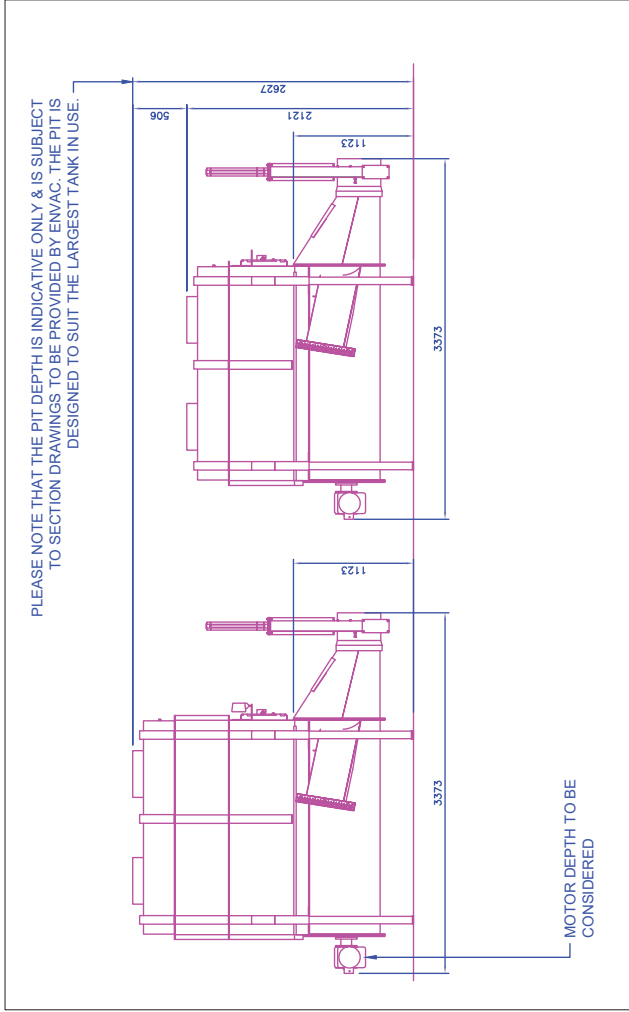
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CHECKED

APPROVED



DETAIL 5-STORAGE TANK (SCTB2)
REFER ENVAC FOR SPECIFICATIONS
SCALE 1:100



DETAIL 6-STORAGE TANK SCT-A2 & SCT-B2 SIDE PROFILES
REFER ENVAC FOR SPECIFICATIONS
SCALE 1:100

LEGEND:

	GLASS
	RECYCLING
	WASTE
	PAPER

NOTE:
DETAILS FOR INFORMATION ONLY. FOR
SPECIFICATIONS REFER TO SUPPLIER.

PROJECT		PROJECT NUMBER		ORIGINAL SIZE	
LOT 130 MUNDOO BOULEVARD, MAROOCHYDORE		18BRW0034		A3	
DRAWING TITLE		DRAWING NUMBER		REVISION	
DETAILS/SPECIFICATIONS SHEET PROPOSED EQUIPMENT/UTILITIES		18BRW0034-08		A	
DATE		DATE		SHEET	
14 May 2019		14 May 2019		2 OF 2	

TTC CONSULTING PTY LTD		ABN 65 010 888 021		LEVEL 8, 369 Ann Street, BRISBANE, QLD, 4000	
P.O. BOX 12015, BRISBANE, QLD, 4003		T: (07) 3327 9500		F: (07) 3327 9501	
E: ttmbris@ttmgroup.com.au		W: www.ttmgroup.com.au			

		Habitat Development Group Pty Ltd	
SCALE		SCALE 1:100 AT ORIGINAL SIZE	
0 1 2 3 4 5 6 7 8 9 10		0 1 2 3 4 5 6 7 8 9 10	
NORTH		NORTH	
REV		AMENDMENT DESCRIPTION	
A		ORIGINAL ISSUE	
14-05-19		DATE	
SD		DRAWN	
SK		CHECKED	
SK		APPROVED	

Discharge Valve

A discharge valve is to be installed at the base of the riser shaft or within the PN-connection to control the entry of waste into the horizontal pipework.

A discharge valve for an indoor inlet is to:

- be a flat valve type;
- be air tight;
- be capable of enduring the impact of falling waste; and
- automatically lock when the discharge valve is closed.

A discharge valve for an outdoor inlet is to:

- be air tight;
- operate between -10 degrees celsius and 50 degrees celsius;
- automatically lock when the outdoor inlet is closed;
- be controlled by a solenoid valve; and
- comprise of EPDM or NBR rubber material.

A discharge valve is to be installed with adequate space for the provision of a storage section pipe and the operation and maintenance of the Private Pneumatic Waste Infrastructure.

An air inlet louvre is to be installed which:

- includes openings that are suitable for air movement for the operation of the Private Pneumatic Waste Infrastructure and to prevent pressurisation of a space containing an air inlet or opening; and
- where an inlet or opening is contained within a room, is made of a grill or mesh material.

A discharge valve is to be pneumatically operated and controlled by the Waste Infrastructure Authority.

A discharge valve is to have a communication signal and a compressed air connection to the AWCS.

An inspection opening or door is to be installed for the operation and maintenance of the discharge valve room.

C.4 Bin Moving Equipment

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Alitrak TT600 - Options

TT600 complete with optional Front Hook and Anti Dumping Wheels & 240 litre bin attachment and

TT600 complete with optional Non Marking Wheels and optional Front Hook and Anti Dumping Wheels

TT600 complete with optional Front Hook and Anti Dumping Wheels & 240 litre bin attachment and

TT600 complete with optional ballast holder and ballast

Pictures	Part Number	Descriptions
#	TT600	Tug Trak 600
#	TTRAR	Options ... Front Hook and Anti Dumping Wheels
#	THKTC	Options ... Hook for 240 & 120 Litre Wheelie Bins
#	BAGM84A	Options ... Battery Gel (2 pieces)
#	TTNMW	Options ... Non Marking Wheels
#	TTOLR	Options ... Operation Light
#	TTTRBM	Options ... Trailer Mount and Ball - Centre Mount
#	TTBH-600	Options ... BALLAST HOLDER (SET2) FOR TT600
#	TTBAL	Options ... BALLAST (SET2) FOR TT600/TT900 (2x7kg)14kg

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TT-600

Ultra Terrain Tug

ZERO EMISSIONS
Made in Europe

Click here to see the video

Ultra Terrain Off-Road Use

The TT-600 is a three wheeled ZERO emission electric drive pedestrian Tug ergonomically designed to easily move trailers, caravans, wagons on all surfaces.

The Tug Trak reduces the manual effort required to perform repetitive tasks thereby improving productivity and reducing the chance of work related injuries.

The TT-600 has a pulling and pushing capacity of 2000kgs and a loading capacity of 300kgs.

With 2 x 75 AH traction batteries, it has an autonomy of up to 8 hours of continuous operation.

The Large 405mm diameter driving wheels ensure maximum traction even on rough surfaces

For slippery surfaces, ballast can be added easily.

- Adjustable height handle to suit all operators
- Folding handle to reduce transport size and costs.
- The compact size of the TT-600 means that it is easily manoeuvred and can be used in small spaces.
- The design allows for pushing or pulling and comes with a standard centre connection post
- With the addition of the optional front pin attachment, trailer ball accessory or the waste container connector, the TT-600 can handle many tasks.
- Other options are solid, non-marking tires and Flashing Safety Lights.

PERFORMANCE

Pulling Capacity	2 Tonnes (On castors) 8 Tonnes (On rails)
Loading capacity	300 kg
Motor Power	24V 600W
Pulling speed	max 4.5 km/h
Pushing speed	max 2.5 km/h
Battery charger	On board
Battery Autonomy	approx 8 hrs

24/7 Sales & Service Agent

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www.spacepac.com.au

DIMENSIONS

Lead Acid Traction Batteries	2 x 75 AH 24 Volt @ 5 h
2000 Charge-Life-cycle. Optional Gel Batteries	1000 Charge-Life-cycle
Battery recharging time	5 to 8 hours
Parking brake	Electromagnetic with the possibility of release
Machine Weight	130 kg
Driving Wheels Diameter	405 x 100 mm
Part Number	# TT-600 (see page 2 for options)

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690 mm

1360 mm

1000 mm



Appendix D Refuse Signage

Sunshine Coast Council – AWCS Education and Communication Plan

Refuse Signage Resource

Free signage is available from the Queensland Government site using the following link:

http://www.ehp.qld.gov.au/waste/recycling/awareness_raising_materials_for_public_place_recycling.html.

Example Bin or Wall Signage



Example Safety Signage

Safety Signs are required for refuse discharge and storage rooms / areas and must comply with Australian standards “AS 1319 Safety signs for the occupational environment”. Additional state or local government requirements may also apply. Following are examples of typical signs used around a waste storage area. It should be noted however that an assessment must be completed by a qualified fire and safety consultant, prior to occupancy, to determine the correct signage to be used.

Fire Management:



Refuse Room Management:



Example Refuse Separation Signage

What can I recycle?

mixed glass bottles & jars	cartons
mixed paper & card	telephone directories
food tins & drink cans	aerosols
	<i>NEW - yoghurt pots, margarine tubs, food trays and other plastic containers.</i>
household plastic packaging	

Yes please

corrugated cardboard

Yes please

Small appliances

Clothes and shoes

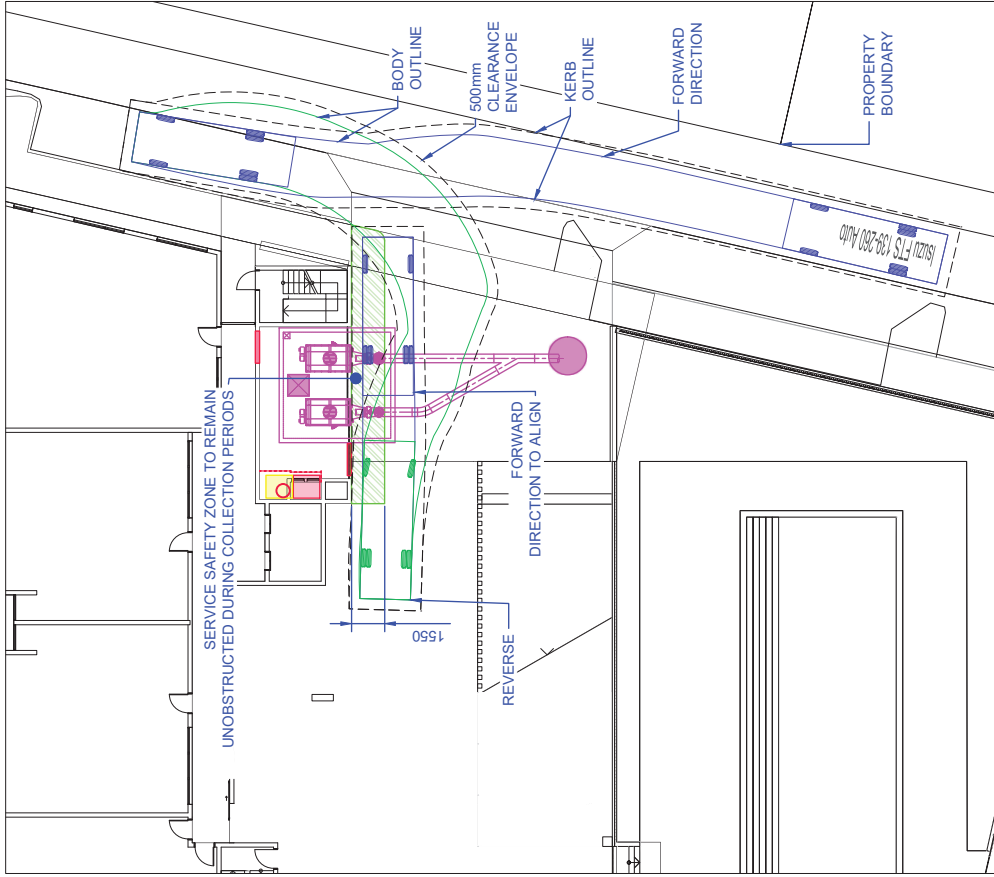
Food waste

No thanks

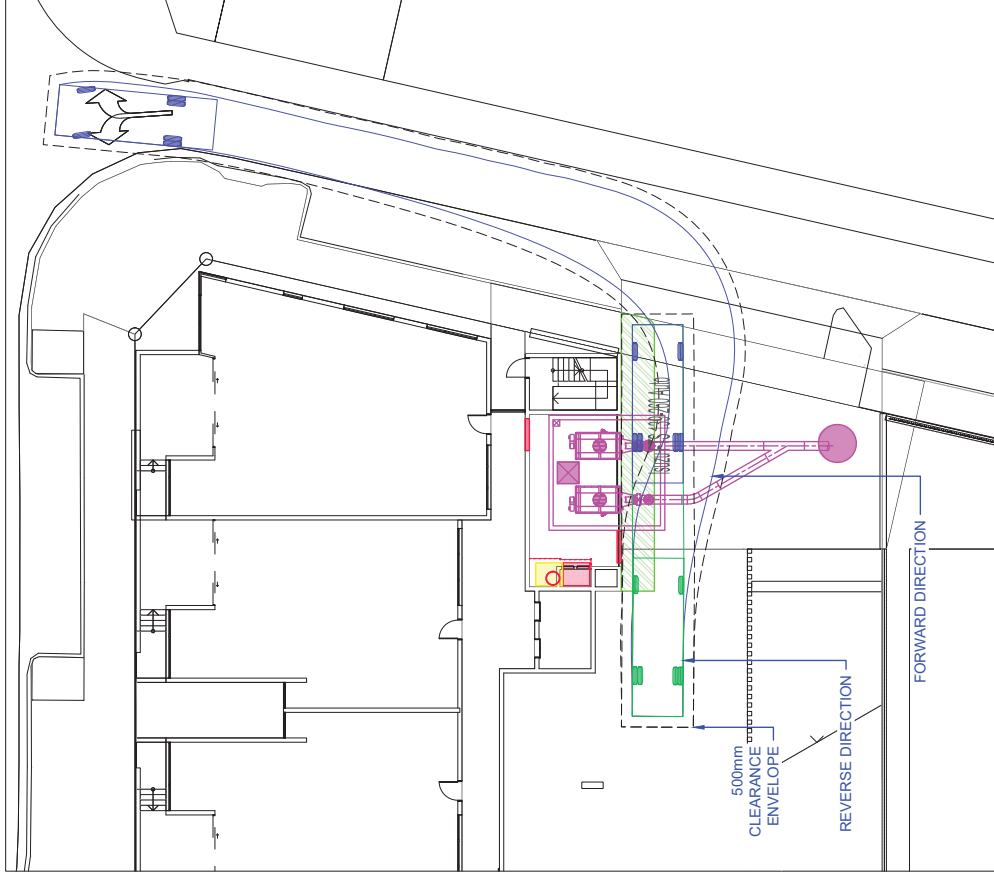
Top tips

- Large cardboard boxes block the chutes, please flatten them and take them to your nearest Smart Bank.
- Rinse out bottles, jars and cartons as waste food and liquid make items unpleasant to store and sort.
- Remove lids from bottles and cartons.
- Squash plastic bottles and cartons.
- Make sure that aerosol cans are empty.

Appendix E Refuse Vehicle Swept Path

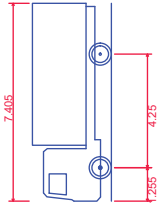


REFUSE COLLECTION ENTRY MANOEUVRE
SCALE 1:250



REFUSE COLLECTION EXIT MANOEUVRE
SCALE 1:250

**PRELIMINARY
ADVICE ONLY**
14 May 2019



Isuzu FTS 139-260 Auto
Overall Length 7.405m
Overall Width 2.365m
Overall Body Height 2.955m
Min Body Ground Clearance 0.404m
Track Width 2.365m
Lock-to-lock time 2.00s
Curb to Curb Turning Radius 8.750m
Clearance Envelope 0.500m
Design Speed Forward Min 5.0km/h

- NOTE:
1. MAGENTA DETAILS ON THE PLAN REPRESENT ENVAC EQUIPMENT.
 2. CONCEPT DRAWINGS DEMONSTRATE WASTE ROOM STORAGE CAPACITY AND CONFIGURATION, INCLUDING BOTH AWCS & NON-AWCS EQUIPMENT. TO MEET THE PWIS REQUIREMENTS, ENVAC HAVE BEEN DIRECTLY CONSULTED AND ARE ENGAGED TO SUPPLY PLAN AND SECTION DRAWINGS TO CONFIRM THE WASTE ROOM, AWCS TANK PIT AND CONNECTION DESIGN. THE WASTE ROOM SIZE AND CONFIGURATION IS CONSIDERED ADEQUATE FOR PROCEEDING TO DETAILED DESIGN.

		SCALE	
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Appendix F Sunshine Coast Council – AWCS Education and Communication Plan

To Be inserted

